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(56) Documents Cited

EP 0738520 A EP 0259582 A US 5224939 A

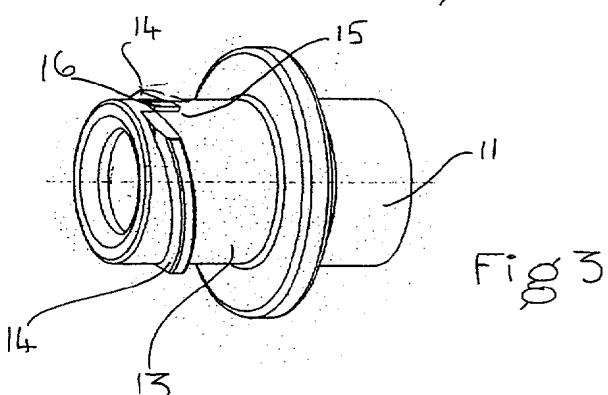
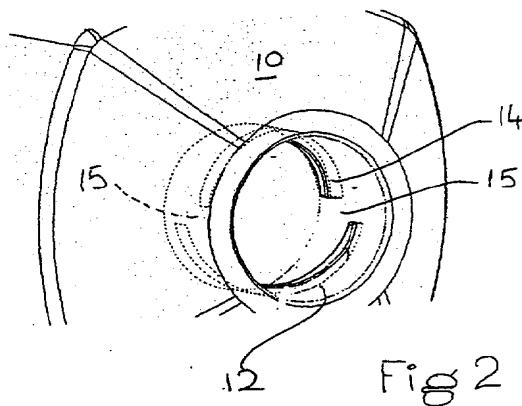
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(54) Abstract Title

Automatic locking threaded connector

(57) The connector is particularly though by no means exclusively for joining components of medical fluid handling devices such as syringes, cannulas, catheters, etc. It includes a male part (11) and a female part (10). Between the upstanding portion (14) of the thread on each part is a void (15); In the void (15) of one of the parts is a barb (16). The arrangement being such that as the parts are screwed together at least one of the parts resiliently deforms to allow the barb (16) to latch behind an end of a thread at the void (15) in the other part to prevent disconnection by unscrewing of the parts.



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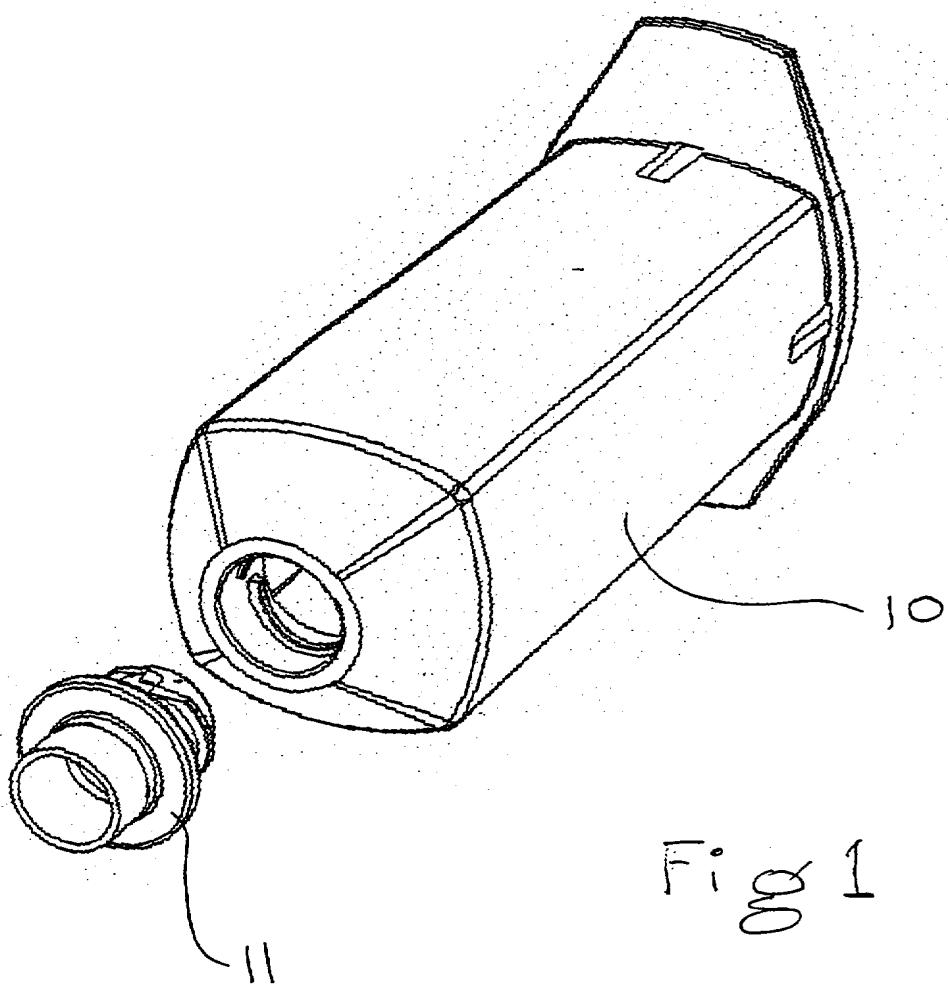
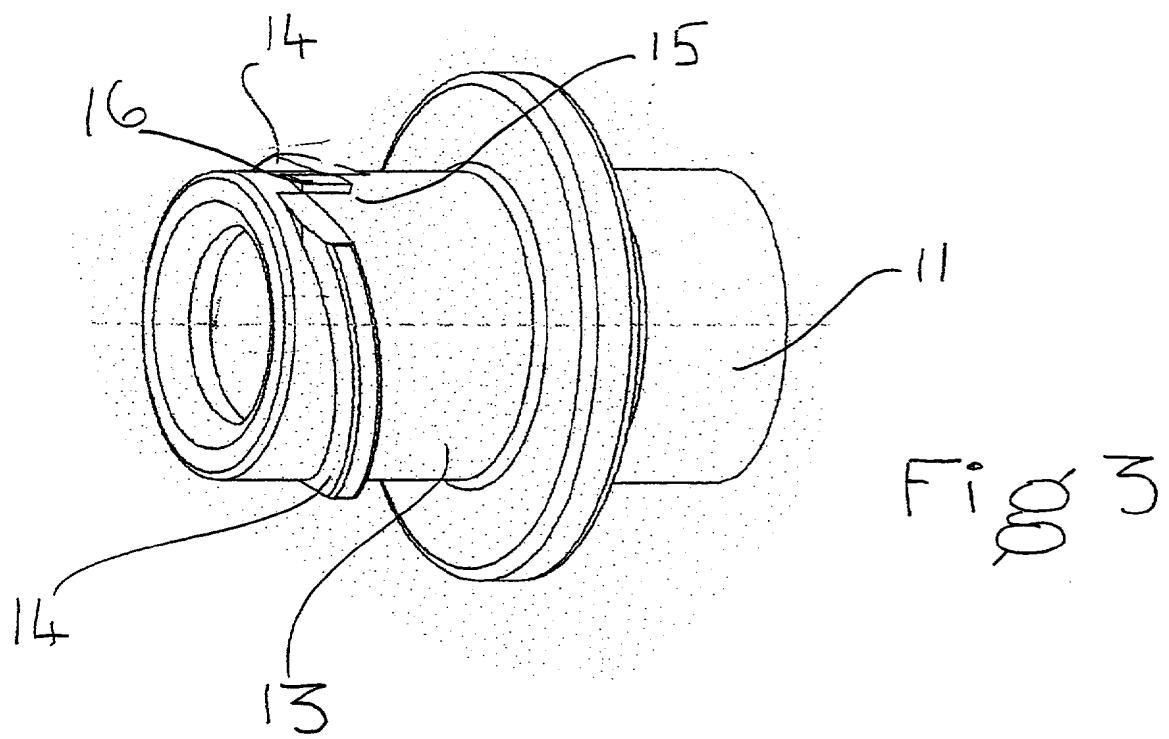
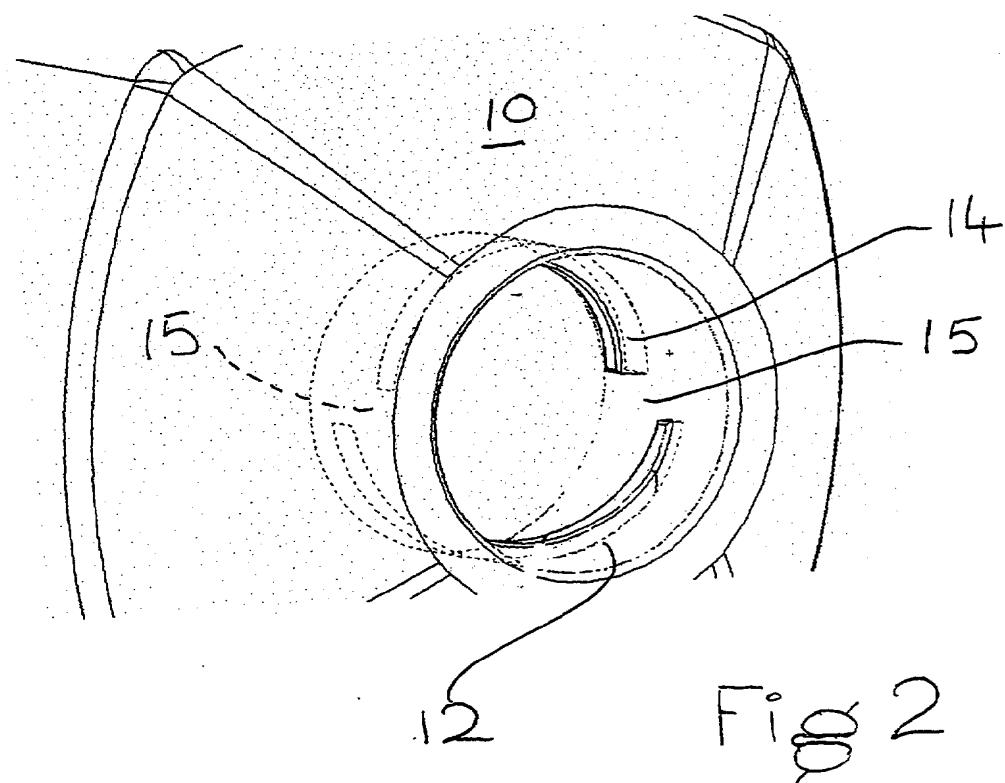


Fig 1

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THREADED CONNECTION

This invention concerns a threaded connection between a male part and a female part which, when properly threadedly engaged, cannot be disconnected, particularly, though by no means exclusively, suitable for joining components of fluid handling medical devices such as syringes, cannulas and catheters for example.

According to the present invention there is provided a threaded connection between a male and a female part, there being a void in an upstanding portion of the thread on each part and a barb in the void on one of the parts, the arrangement being such that when the parts are threadedly engaged, resilient deformation of at least one of the parts enables the barb to latch behind an end of a thread at the void in the other of the parts to prevent subsequent disconnection of the parts.

There may be on each part a two-start thread, the upstanding portion of each thread having a circumferential extent of less than 180° whereby there are voids between the ends of the two threads on each part and diametrically opposed barbs in the voids on the male part.

The height of each thread on the female part may increase from one end to the other which provides the abutment against which a barb latches.

The invention will be further apparent from the following description with reference to the several figures of the accompanying drawings, which show by way of example only one form of threaded connection embodying same.

Of the drawings:

Figure 1 shows a perspective view of a syringe barrel and connector for a needle mount;

Figure 2 shows a perspective view of the forward end of the syringe barrel on an enlarged scale; and

Figure 3 shows a perspective view of the connector on an enlarged scale.

Referring now to the drawings, it will be seen that the threaded connection of the invention is provided between the barrel 10 of a syringe and a connector 11 which provides a means for mounting a hypodermic needle (not shown).

As best seen from Figures 2 and 3, there is a threaded female socket part 12 at the forward end of the barrel 10 adapted to receive a threaded male part 13 of the connector 11.

Each of the parts 12 and 13 is provided with a two-start right handed thread. The upstanding portion 14 of each of the four threads has a circumferential extent of less than 180° whereby there are voids 15 between the ends of the two threads on each part.

On the part 13 are diametrically opposed barbs 16 in the voids 15.

When the parts are threadedly connected the barbs 16 are introduced to the voids 15 on the part 12 before relatively rotating the two parts. During rotation the part 12 which is of a plastics material resiliently deforms as the barbs 16 override the portions 14 of the threads on the part 12 before the barbs latch behind the ends of the threads on the part 12 to lock the parts 12 and 13 against disconnection.

The height of each thread on the female part increases from one end to the other which provides the abutment against which the barbs 16 latch to facilitate the threading operation and deformation of the part 12.

It will be appreciated that it is not intended to limit the invention to the above example only, many variations, such as might readily occur to one skilled in the art, being possible, without departing from the scope thereof as defined by the appended claims.

For example, only one of the parts need be deformable, the other being rigid and of a material such as glass for example.

CLAIMS

1. A threaded connection between a male and a female part, there being a void in an upstanding portion of the thread on each part and a barb in the void on one of the parts, the arrangement being such that when the parts are threadedly engaged, resilient deformation of at least one of the parts enables the barb to latch behind an end of a thread at the void in the other of the parts to prevent subsequent disconnection of the parts.
2. A threaded connection according to claim 1 comprising on each part a two-start thread, the upstanding portion of each thread having a circumferential extent of less than 180° whereby there are voids between the ends of the two threads on each part and diametrically opposed barbs in the voids on the male part.
3. A threaded connection according to claim 1 wherein the height of each thread on the female part increases from one end to the other which provides the abutment against which a barb latches.
4. A threaded connection according to either claim 1 or claim 2 wherein the threads are right-handed.
5. A threaded connection according to any preceding claim wherein at least the female part is of a plastics material.



The Patent Office



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Claims searched: 1-5

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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Other: Online: WPI, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	EP 0738520 A	(C. R. BARD, INC.)	
A	EP 0259582 A	(FARMITALIA CARLO ERBA)	
A	US 5224939	(SCIMED LIFE SYSTEMS INC.)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.